

REMARKS

The following remarks are responsive to the Office Action mailed March 18, 2002. Claims 1-49 are pending.

Claims 1-5, 16-20, 31 and 34 have been amended to clarify the invention. Applicant does not acquiesce to the subject matter of the claims prior to this Amendment, and reserves her right to pursue the subject matter of those claims.

Claims 39-49 have been newly added by this Amendment. No new matter has been introduced by the newly added claims or claim amendments made herein.

The Examiner has rejected claims 1-38 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent 6,008,868 to Silverbrook ("Silverbrook") and U.S. Patent 6,188,385 to Hill et al. ("Hill").

Rejection Under 35 U.S.C. § 103(a)

Applicant submits that claims 1-38, as amended, are patentable over Silverbrook in view of Hill under 35 U.S.C. § 103(a).

To reject the claims under § 103(a), the Examiner must provide a *prima facie* case of obviousness. In order to meet this burden, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

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Applicant respectfully submits that neither Silverbrook nor Hill, individually or in combination, meet these requirements to render claims 1-38, as amended, unpatentable under 35 U.S.C. § 103(a). Specifically, neither Silverbrook nor Hill, individually or in combination, teach or suggest each and every limitation of the claims.

Independent claims 1, 16, 31, and 34, as amended, recite a display having a combination of elements including blue, red, and green emitters “wherein each said emitter is connected to a driver and at least two neighboring blue emitters are **connected to the same driver.**” (Claims 1, 16, 31, and 34)(emphasis added).

Silverbrook fails to teach or suggest at least the limitation to “at least two neighboring blue emitters connected to the same driver,” as recited in claims 1, 16, 31, and 34. Specifically, Silverbrook teaches a conventional RGB pixel layout having six drive lines to drive the RGB pixel layout for different complexities. For instance, Silverbrook teaches two red drive lines for the R subpixel, three green drive lines for the G subpixel, and one blue drive line for the B subpixel. (Silverbrook, col. 5, l. 59 to col. 6, l. 5; FIGS. 4, 5, 8, and 9). Nowhere in Silverbrook does it teach or suggest at least the limitation to “at least two neighboring blue emitters connected to the same driver,” as recited in claims 1, 16, 31, and 34.

Hill fails to cure the deficiencies of Silverbrook with respect to claims 1, 16, 31, and 34. Hill teaches increasing a screen's resolution in the dimension perpendicular to the dimension in which the screen is stripped, e.g., conventional RGB pixel sub-elements arranged lengthwise or horizontally. (Hill, Abstract, FIG. 16). Thus, like Silverbrook, Hill does not teach or suggest at least the limitation to “at least two

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neighboring blue emitters connected to the same driver,” as recited in claims 1, 16, 31, and 34.

Therefore, for at least the above reasons, claims 1, 16, 31, and 34 are patentable over Silverbrook and Hill. Given that claims 2-5, 17-20, 32-33, and 35-38 depend on claims 1, 16, 31, and 34, respectively, claims 2-5, 17-20, 32-33, and 35-38 are patentable over Silverbrook and Hill.

Independent claims 6, 11, 21, and 26, as amended, recite a display having a combination of elements including blue, red, and green emitters. More particularly, those claims recite, *inter alia*: “said blue emitter having an **emitting area larger** than that of each of said red emitters and said green emitters ;” (Claims 6 and 21)(emphasis added) and “said blue emitter having a **larger drive-to-luminance gain** than that of each of said red emitters and said green emitters.” (Claims 11 and 26)(emphasis added).

As noted above, both Silverbrook and Hill teach using conventional RGB pixel layouts in which Silverbrook teaches using one drive line for the blue sub-pixel element and Hill teaches a conventional RGB pixel layout having an increased resolution in the lengthwise dimension. Thus, neither Silverbrook nor Hill, individually or in combination, teach or suggest the claimed blue emitter having an emitting area larger than red and green emitters or a drive-to-luminance gain larger than the red and green emitters, as recited in claims 6, 11, 21, and 26.

Therefore, for at least these reasons, claims 6, 11, 21, and 26 are patentable over Silverbrook and Hill. Given that claims 7-10, 12-15, 22-25, and 27-30 depend on

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claims 6, 11, 21, and 26, respectively, claims 7-10, 12-15, 22-25, and 27-30 are patentable over Silverbrook and Hill.

Independent claims 37 and 38 recite a row structure, in an array of three-color pixel elements, and an array, respectively, having a combination of elements including first and second row line drivers and first through fifth column line drivers. Neither Silverbrook nor Hill, individually or in combination, teach or suggest at least the limitations regarding those row line drivers and column line drivers, as recited in claims 37 and 38. Therefore, for at least these reasons, claims 37 and 38 are patentable over Silverbrook and Hill.

Moreover, it is respectfully submitted that neither Silverbrook nor Hill disclose or suggest a combination with each other. In particular, these references are directed to different types of displays to achieve different purposes. For instance, Silverbrook is directed to a display having a conventional RGB pixel layout with six drive lines to drive the RGB pixel layout in providing different levels of complexities. (Silverbrook, Abstract, col. 5, l. 59 to col. 6, l. 5). Hill is directed to a display having a RGB pixel layout with an increased resolution in the lengthwise dimension. Thus, it would be impermissible hindsight based on Applicant's own disclosure to combine the teachings of those references. Moreover, even if the references were combinable, these references would still fail to disclose or suggest at least the above claim elements noted above.

New Claims

Additionally, Applicant respectfully submits that new claims 39-49 are patentable over Silverbrook, Hill, and the cited art of record. In particular, neither Silverbrook or Hill teach or suggest at least the limitations to "at least two neighboring blue emitters are

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connected to the same driver," as recited in claims 39 and 42-46. Additionally, the cited art of record does not teach or suggest at least the limitations to red and green emitters forming a checkerboard pattern as recited in claims 40-41 and 47-49.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1-49 patentable over the cited art of record and are in condition for allowance. Therefore, Applicant requests the Examiner to reconsider and withdraw his rejections to all pending claims and pass this application to issue.

If the Examiner believes a telephone conference would expedite the allowance of the claims, the Examiner is invited to contact Sang Hui Michael Kim at (650) 849-6680.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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APPENDIX

Claims 1-5, 16-20, 31 and 34 have been amended as follows:

1. (Twice Amended) A display comprising substantially a plurality of three-color pixel elements [element for a display], said three-color pixel element comprising:

a blue emitter disposed at the origin of a rectangular coordinate system having four quadrants;

a pair of red emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a first pair of opposing quadrants of said rectangular coordinate system; [and]

a pair of green emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a second pair of opposing quadrants of said rectangular coordinate system; and

wherein each said emitter is connected to a driver and at least two neighboring blue emitters are connected to the same driver.

2. (Amended) The display of [three-color pixel element] of claim 1 wherein:

said blue emitter is polygonal having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge to a side of said polygonal blue emitter.

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3. (Amended) The display of [three-color pixel element] of claim 2 wherein:

said blue emitter is four-sided having equal internal angles, having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

4. (Amended) The display of [three-color pixel element] of claim 3 wherein:

said blue emitter is square having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter; and

said green emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter.

5. (Amended) The display of [three-color pixel element] of claim 1 wherein:

said blue emitter is square-shaped having sides aligned parallel to x and y axes of said rectangular coordinate system; and

said red emitters and said green emitters are L-shaped and envelop said square blue emitter.

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16 (Twice Amended) A display comprising substantially a plurality of three-color pixel elements [element in a shape of a square for a display], said three-color pixel element comprising:

a pair of red emitters, outer corners of each forming a first two opposing corners of a square;

a pair of green emitters, outer corners of each forming a second two opposing corners of said square; [and]

a blue emitter disposed at a center of said square; and

wherein each said emitter is connected to a driver and at least two neighboring blue emitters are connected to the same driver.

17. (Twice Amended) The display [three-color pixel element] of claim 16 wherein:

said blue emitter disposed at said center of said square and is polygonal having sides aligned such that imaginary lines perpendicularly bisecting each side pass through corners of said polygon;

said red emitters are polygonal, each having an inwardly-facing edge parallel to an edge of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge parallel an edge of said polygonal blue emitter.

18. (Twice Amended) The display [three-color pixel element] of claim 17 wherein:

said blue emitter disposed at said center of said square and is four-sided having equal internal angles, having sides aligned such that imaginary lines perpendicularly bisecting each side pass through said corners of said square;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter; and

said green emitters are four sided having equal internal angles, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter.

19. (Twice Amended) The display [three-color pixel element] of claim 18 wherein:

said blue emitter disposed at said center of said square and is square-shaped having sides aligned such that imaginary lines perpendicularly bisecting each side pass through said corners of said square;

said red emitters are square-shaped, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter; and

said green emitters are square-shaped, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

20. (Twice Amended) The display [three-color pixel element] of claim 16 wherein:

said blue emitter disposed at said center of said square and is square-shaped having sides parallel to sides of said square;

said red emitters and green emitters are L-shaped and envelop said square-shaped blue emitter.

31. (Twice Amended) An array for a display comprising:

a plurality of row positions;

a plurality of column positions; and

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a plurality of three-color pixel elements, one of said elements disposed in each of said row positions and said column positions, each of said three-color pixel elements comprising:

a blue emitter disposed at an origin of a rectangular coordinate system having four quadrants;

a pair of red emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a first pair of opposing quadrants of said rectangular coordinate system; [and]

a pair of green emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a second pair of opposing quadrants of said rectangular coordinate system; and

wherein each said emitter is connected to a driver and at least two neighboring blue emitters are connected to the same driver.

34. (Twice Amended) An array for a display comprising:

a plurality of row positions;

a plurality of column positions; and

a plurality of three-color pixel elements, one of said elements disposed in each of said row positions and said column positions, each of said three-color pixel elements comprising:

a blue emitter disposed at a center of said square;

a pair of red emitters spaced apart from said blue emitter [emitters], outer corners of each forming a first two opposing corners of a square

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a pair of green emitters spaced apart from said blue emitter [emitters],
outer corners of each forming a second two opposing corners of said square;

[and

[a blue emitter disposed at a center of said square.] and

wherein each said emitter is connected to a driver and at least two
neighboring blue emitters are connected to the same driver.

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